

CALCOMP NEWSLETTER

CALIFORNIA COMPUTER PRODUCTS, INC. 2411 West La Palma Avenue Anaheim, California 92801



CALCOMP PLOTTER AT COMPUTER SERVICE, INC. PRODUCES WIDE VARIETY OF ARCHITECTURAL DRAWINGS

Computer Service, Incorporated, Chicago, Illinois, has developed an impressive capability to combine all phases of the engineering, specification, and management of large-scale architectural projects. Roughly 50 percent of their work results in graphic output produced on a CalComp Model 663 plotter operating on-line to the IBM 1130. Reproduced on the next page are floor plans plotted by Computer Service. These represent programming and an architectural data base that have been developed over a three-year period and are still being augmented.

Computer Service programs calculate all coordinates from hand-coded input. No digitizing is done. Digitizing of a floor plan was tried at one time; but, in the words of Vice President Maurice V. Girardi, "We quickly realized that the process is redundant. In order to digitize a drawing, you must first have the drawing. The paradox is obvious."

Another less than satisfactory approach was attempting to get architects to code forms. That resulted in nearly as much written comment on the back of the forms as useful data on the front.

Now, Computer Service clients submit a rough but accurate sketch superimposed on a grid network. Computer Service personnel do the coding and return a finished drawing, as well as tables of calculated information. Other related information can also be obtained from the Computer Service data base.

Michael R. Eiben developed the floor plan plotting system. It is based on a building-block concept. The interiors of rooms are defined first, then a mathematical operation resembling a mouse in a maze runs the exterior walls around any configuration. These were the first capabilities developed.

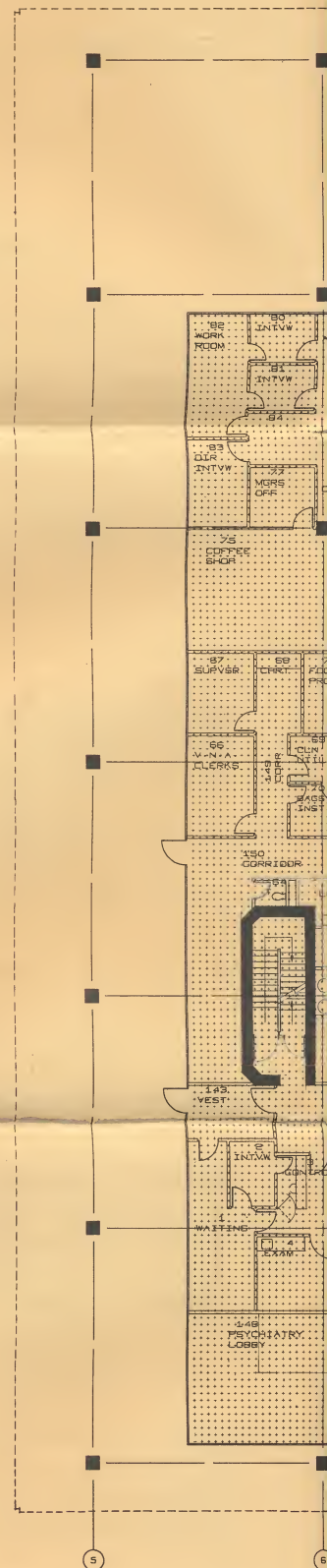
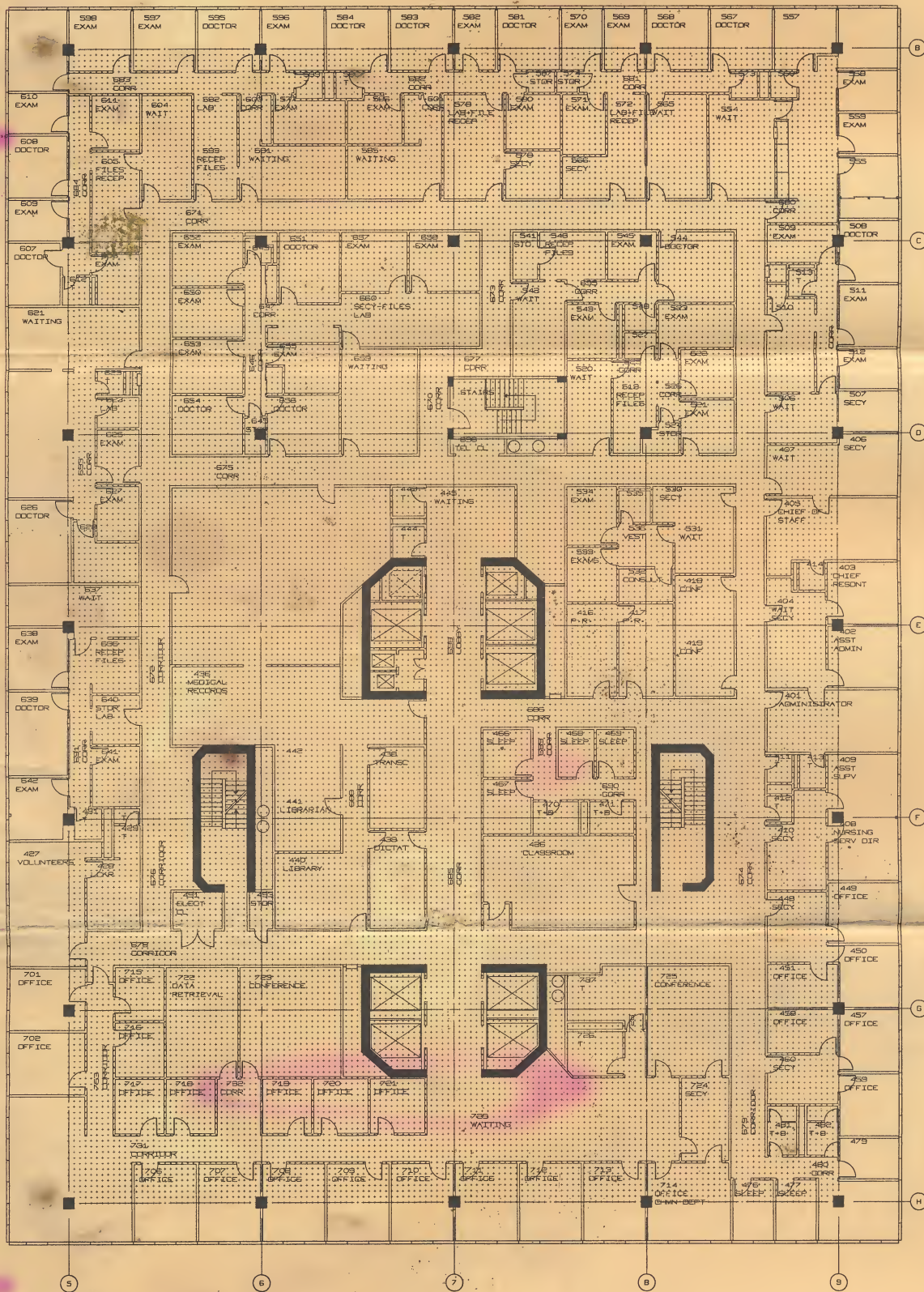
The next step was to add descriptions of wall materials. A table tells the computer how thick walls of each material need to be. This makes it possible to get quantity take-offs and costing elements.

As the program grew, flexibility was added. It is possible to move an individual room or to keep adding similar rooms in the x or y direction. L-shaped, three-sided, multicompartmented, and other nonstandard rooms can be created. Doors of different types can be placed automatically, as can zones and arbitrary forms that represent building features other than rooms. The space consumed by doors is subtracted from the area calculations for finishes. Plumbing chases are excluded from net area calculations.

Structural programs also contribute to the drawing file. When columns are plotted, they are the exact size calculated by the structural programs. This has made it possible to flag errors in submitted design drawings, such as a door opening into a three-foot-square column that the designer had represented as one foot square. Computer graphics make such errors obvious, where they might otherwise be missed until construction began.

Having the rooms stored on disk makes it possible to plot selected portions of a floor plan on the CalComp 663 at any desired scale. It is also possible to call up information about a particular room, such as its area, its volume, what materials it is made of, where the closest column is. Such information helps interior and equipment people put in furniture, laboratory equipment, kitchen equipment and the like.

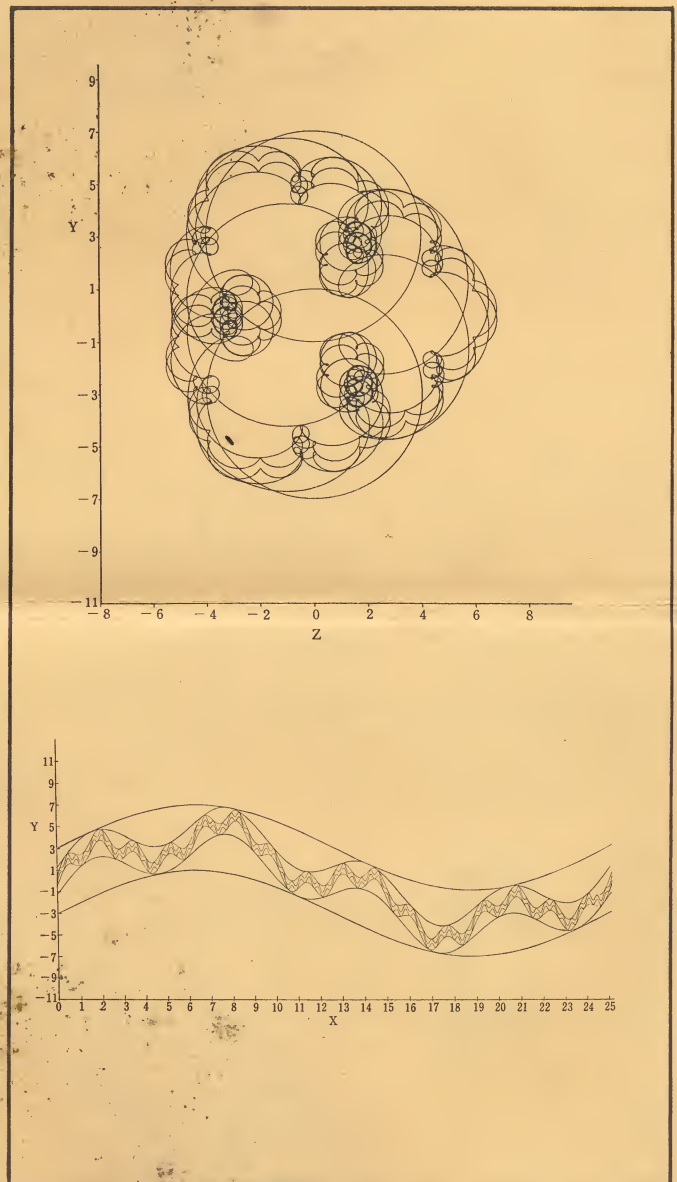
A building module gridwork can also be indicated graphically, as can a reflective ceiling lighting plan. The computer does a fine job of placing electrical outlets and similar tasks that are governed by fixed rules. These things can then be plotted with no effort by a draftsman or designer.



PLOTTERS IN SCIENTIFIC RESEARCH

Nori Sinoto of the Thinking Corporation of America has produced meaningful results from his research in the field of chromosome analysis. Mr. Sinoto used the Burroughs B5500 and CalComp's Model 563 drum plotter to help visualize the basic structure and the separability of a chromosome. The plots reproduced here show the longitudinal and end views of a chromosome.

For further information on Mr. Sinoto's work, a copy of his article, "Helixen and Actants III, Chromosome as an Inevitable Form for Long DNA Separation," which appeared in the December 25, 1970 issue of CYTOLOGIA, may be obtained by writing to The Thinking Corporation of America, 8 East 62nd Street, New York City 10021.



**CALCOMP WILL BE AT THESE SHOWS
DURING THE MONTHS OF
SEPTEMBER AND OCTOBER**

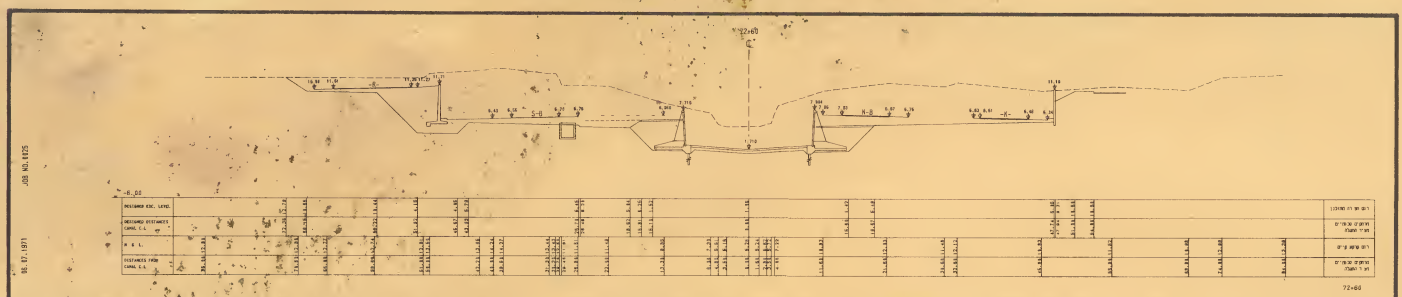
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| Sept. 14-18 | Helsinki Trade Fair, Helsinki, Finland |
| Sept. 15-17 | Canadian Computer Show, Toronto |
| Sept. 20 | U.S. Trade Center, Sydney, Australia |
| Sept. 18-22 | Osaka Business Show, Osaka, Japan |
| Sept. 23-
to Oct. 2 | } SICOB, Paris, France |
| Oct. 2-10 | |
| Oct. 6-17 | International Fair, Systemotechnika '71,
Leningrad U.S.S.R. |
| Oct. 14-20 | Interkama, Dusseldorf, W. Germany |
| Oct. 21-27 | Data Office, Stockholm, Sweden |

PLOTTER SAVES TWO MONTHS ON AYALON HIGHWAY PROJECT

IDAN Computers, Ltd., of Tel Aviv, Israel, was contracted to plot 600 cross sections of combined highway, railway, telephone tunnel and water diversion systems in the Ayalon River bed in Tel Aviv. Plotting time of a section varies between 12 to 15 minutes with the CalComp Model 563 (0.005 in. increment). Since the total job took about 150 hours of plotting which had to be run concurrently with the regular engineer-

ing project, IDAN's 1130-Spooling System was used thus enabling the completion of the work in five weeks.

Several plotting subroutines were used to produce the sample plot shown here which are included in IDAN's Plotter Utility Subroutine Package. Date and job number are available automatically from the JODAT program which prints in compilation the date and consecutive job number and has these variables available for use in any type of output. Other plotting and civil engineering software packages are also available from IDAN.



CROSS SECTION OF WATER DIVERSION SYSTEM